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BATTERY **CHARGER**

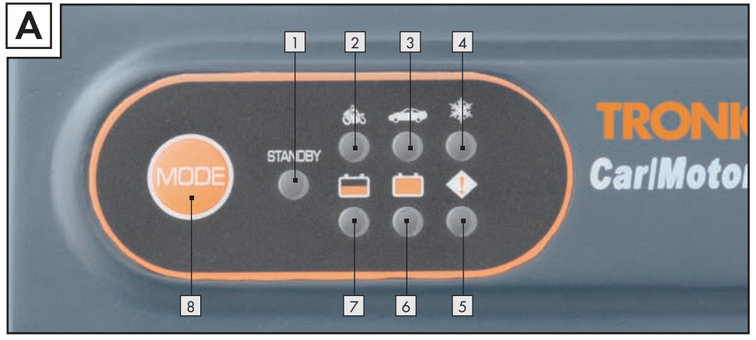
T4X

TRONIC®

GB IE CY Before reading, unfold the page containing the illustrations and familiarise yourself with all functions of the device.

GB **BATTERY CHARGER**
IE Operation and Safety Notes
CY

A



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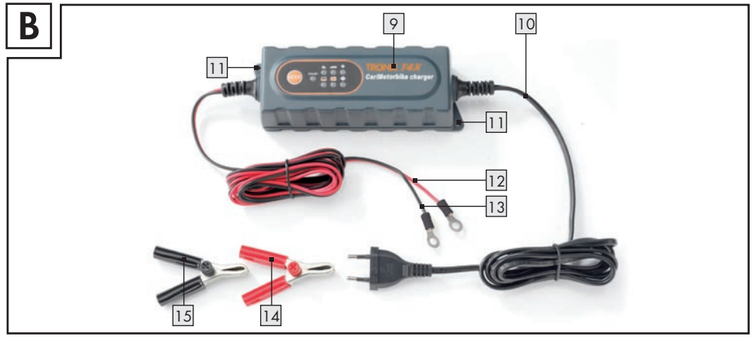

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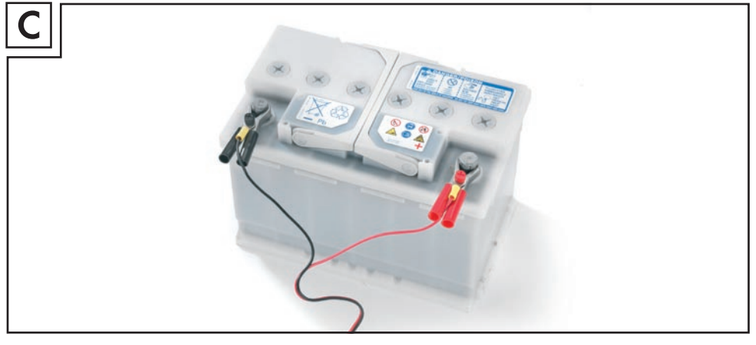

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The following pictogrammes / symbols are used in these operating instructions:			
	Read the operating instructions!	W	Watts (effective power)
	Always heed warning labels and safety instructions!	V~	Volt (AC)
	Caution - Danger of electric shock! Hazardous voltage – danger to life!		Proper procedure and handling.
	Explosive material!		Keep children and other unauthorised personnel at a safe distance when using electrical tools.
	Risk of fire!		Dispose packaging and appliance in an environmentally-friendly way!

Battery charger T4X

for rechargeable batteries / batteries from 1.2 Ah to 120 Ah

Introduction

Operate the charging appliance in a warmed and well ventilated room. Any incorrect or improper use leads to loss of the warranty. The manufacturer takes no responsibility for damage(s) arising out of usage that is contrary to the instructions laid down. The appliance is not meant for commercial use.

For your safety

Please carefully read these operating instructions and fold out the page with the illustrations.Observe this information exactly when putting the appliance into operation. If you have any further questions regarding use, please contact the service department responsible for your country. Keep these operating instructions in a safe place and hand them over to anyone to whom you pass on the appliance.

Delivery Contents

Check the appliance and all accessories for damage immediately after unpacking. Do not put a defective appliance or parts into operation. Please contact the resonsible service department for a replacement.

1 Charger TRONIC T4X
2 Quick / contact clamps (1 red, 1 black)
1 Operating manual
Guarantee documents

Proper Use

The TRONIC T4X is a primarily mains-connected (working with measuring and control functions) charging station with pulse trickle charge function, suitable for charging and trickle charging 12 V lead accumulators (batteries) with electrolyte solution or gel. The charger has a circuit-breaker as protection against sparking and overheating.

Component description

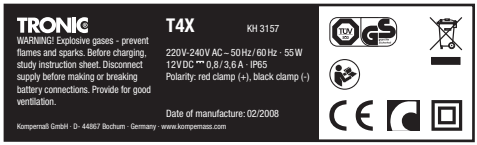
1 STANDBY LED display :"STANDBY" (standby)
2 LED display „Mode 1"
3 LED display „Mode 2"
4 LED display „Mode 3"
5 LED display „incorrect polarity/fault"
6 LED display „fully charged"
7 LED display „Charging process active"

8 ● Selection button „MODE"
9 Charging station
10 Mains cable with power plug
11 Fixing holes
12 „+"-Pole connection cable (red), incl. ring shoe
13 „–"-Pole connection cable (black), incl. ring shoe
14 „+"-Pole quick-contact terminal (red), incl. red fixing screw
15 „–"-Pole quick-contact terminal (black), incl. black fixing screw

● Technical Data

Input voltage:	220-240 V ~ 50 / 60 Hz
Starting current:	< 25 A
Input current:	max. 0.6 A (Effective value)
Power consumption:	55 W
Return current*:	< 5 mA (no AC input)
Nominal voltage:	12 V DC ⎓
Nominal current:	0,8 / 3,6 A
Charging voltage:	14.4 V ± 0.25 V or 14.7 V ± 0.25 V
Charging current:	max. 3.6 A (3.6 A ± 10 % or 0.8 A ± 10 %)
Noise value**:	max. 150 mV
Battery type:	12 V lead acid battery 1.2 Ah - 120 Ah
Type of housing protection:	IP 65 (dustproof, waterproof)
Dimensions:	180 x 62 x 40 mm (L x W x H)
Weight:	0.5 kg approx.
Noise level:	< 50 dB (A) (tested from a distance of 50 cm)

* = Return current is the current used by the charging station battery, when no mains current is connected.
** = Noise value is the disturbance of current and voltage.


TRONIC
WARNING! Explosive gases - prevent flames and sparks. Before charging, study instruction sheet. Disconnect supply before making or breaking battery connections. Provide for good ventilation.
T4X
KH 3157
220V-240V AC – 50Hz / 60Hz · 55W
12V DC ⎓ 0,8 / 3,6 A · IP65
Polarity: red clamp (+), black clamp (-)
Date of manufacture: 02/2008
Kompernaß GmbH · D- 44867 Bochum · Germany · www.kompernass.com

● Safety

Safety information

⚠ **Danger!** Avoid danger to life and limbs caused by improper use!

- Do not operate the appliance with a damaged cable, power cord or plug.

⚠ **CAUTION!** A damaged power cord causes danger to life by electric shock.

- If damaged, have the power cord ¡ repaired by authorised and trained technicians only! Please contact the service department for your country!
- Do not allow toddlers or children near the charging station without super-vision! Children cannot assess the potential danger in the handling of electrical equipment.
- **Explosion hazard!** Protect yourself from a highly explosive oxyhydrogen gas reaction! Gaseous hydrogen can leak from the battery during the charging and discharging process. Oxyhydrogen gas is an explosive mixture of gaseous hydrogen and oxygen. The result is the so-called oxyhydrogen reaction upon contact with open fire (flames, embers or sparks)! Carry out the charging or discharging procedure in a wellventilated room protected from the weather. Make sure that there are no sources of open fire (flames, embers or sparks) in the vicinity when charging or discharging batteries!
- **Danger of explosion and fire!** Make sure that explosive and flammable substances e.g. petrol or solvents can be ignited when using the charging station!

⚠ **Danger of chemical burns!** Protect your eyes and skin against chemical burns caused by acid (sulphuric acid) upon contact with the battery! Do not look directly at the connected battery and use the following: acid-resistant safety glasses, protective clothing and gloves! If your eyes or skin come into contact with sulphuric acid, rinse the affected part of the body with plenty of clear running water and seek immediate medical assistance!

- **Protect yourself from an electric shock!** When connecting the charging station, use a screwdriver and a spanner with an insulated handle!
- Only use the charging station for charging and discharging undamaged 12 V lead batteries (with electrolyte solution or gel)!
- Do not use the charging station for charging or trickle-charging batteries without recharging properties.
- Do not use the charging station for charging or trickle-charging a damaged or frozen battery!
- In case of permanently installed batteries, make sure that the vehicle is not in use and is in a secure, stationary position! Switch off the ignition and select a parking position, apply the parking brake (e.g. cars)or a retaining rope (e.g. boats)!
- When connecting the charging station to the battery, avoid short-circuiting. Connect the minus pole connecting cable only to the minus pole of the battery or to the car body. Connect the plus pole connecting cable only to the plus pole of the battery!
- Before connecting to the mains, make sure that the mains current is equipped with standard 230 V ~ 50 Hz, PEN conductor, a 16 A fuse and a residual-current circuit-breaker!
- Only touch the power cord j in the insulated area at the power plug upon contact with the socket outlet with earthing contact!
- Only touch the pole connecting cables („–“ und „+“) in the insulated area!
- Only connect to the battery and the socket outlet with earthing contact of the mains if it is fully protected against moisture!
- Only carry out the assembly, maintenance and servicing of the charging station when it is disconnected from the power supply!
- Do not position the charging station near a fire or subject it to heat or to long-term temperatures exceeding 50 ° C! The output capacity of your charging station is automatically reduces at high temperatures.
- Do not damage any leads or connections for fuel, electricity, brake systems, hydraulics, water or tele-communications when attaching the charging station with bolts! Otherwise there will be a danger to life and limbs!
- Make sure that the plus pole connecting cable has no contact with the fuel line (e.g. petrol line)!
- Ensure that the mains power socket is at all times freely accessible so that in a case of emergency the appliance can be quickly separated from the power source.
- Attention! Avoid damage caused by improper use!
- Only use the charging station with the original parts provided!
- Do not cover the charging station with objects!
- Place the battery in a well-ventilated location during charging.
- Protect the electrical contacts of the battery against short-circuiting!
- Only connect the charging station to a socket outlet with earthing contact equipped with a residual-current circuit-breaker when using outdoors.
- Do not place the charging station driectly on or next to the battery!
- After completing the charging and floating charge operation on a battery permanently installed in the vehicle, first disconnect the cable of the negative (minus) pole (black) of the charger from the negative (minus) pole of the battery.
- In case of malfunction or damage, immediately disconnect the charging station from the mains!
- Have the charging station repaired by authorised and trained specialists only! Please contact the service department for your country!
- Before connecting the charging station, read the information on battery maintenance in the operating instructions of the battery!
- Before connecting the charging station to a battery permanently installed in a vehicle, read the information on electrical safety and maintenance in the operating instuctions of the vehicle!
- Do not subject the battery to mechanical loads!
- When the charging station is not in use, disconnect it from the power supply!

Product features

This appliance has been designed for charging a variety of SLA batteries (sealed lead acid batteries), as mainly used in cars, motorbikes and several other vehicles. They may be of types e.g. WET (with liquid electrolyte), GEL (with mit gel-type electolyte) or AGM (absorbed glass mat) batteries. Their capacity ranges from 12 V / 1.2 Ah to 12 V / 120 Ah.
A special design of the appliance (also named „three-phase-charging strategy") enables the recharging of the batttery to almost 100 % of its original capacity. Furthermore, a long-term connection of the battery to the charging station can take place to keep the battery in optimal condition when not in use, without it being damaged in the process.

Operation

Preparing for use

⚠ **Caution! Danger of electric shock!**
Only install, maintain and service the appliance when it is disconnected form the mains!

Working safely

- When putting the appliance into operation, select a suitable place to do so.
- Take your time when carefully preparing to put the appliance into operation. Put all compoments and any additionally required tools or materials well arranged and within easy reach.
- Always be alert and pay attention to what you are doing. Be sensible when working and do not operate the charging station if you lack the ability to concentrate or do not feel well.

Connection

- Before starting the charging or discharging procedure on a permanently installed battery in a vehicle, first disconnect the minus pole connecting cable (black) of the vehicle from the minus pole of the battery. The minus pole of the battery is usually connected to the car body.
- Then disconect the plus pole connecting cable (red) of the vehicle from the plus pole of the battery.
- Then first connect the „+" pole quick-contact clamp (red) 14 of the charging station to the plus pole („+" pole) of the battery.
- Connect the „–" pole quick-contact clamp (black) 15 to the „–" pole of the battery.
- Connect the power cord 10 of the battery charging station to the socket oulet with earthing contact of the power supply.

Disconnecting

- Disconnect the appliance from the power supply.
- Disconnect the „–" pole quick-contact clamp (black) 15 from the „–" pole of the battery.
- Disconnect the „+" pole quick-contact clamp (red) 14 from the „+" pole of the battery.
- Reconnect the plus pole connecting cable of the vehicle to the plus pole of the battery.
- Reconnect the minus pole connecting cable of the vehicle to the minus pole of the battery.

Select charging mode

For charging various batteries at different ambient temperatures you can choose between three different charging modes. Select the most efficient and suitable charging mode for charging the battery.
In comparison with conventional battery charging stations, this appliance has a special function for reusing an empty battery or rechargeable battery. You can recharge an empty battery / rechargeable battery. Safe charging is ensured by means of a protection function against incorrect connection and short circuiting. Due to the installed electronics, the charging station does not begin operation directly after connecting the battery, but only starts after a charging mode has been selected.

This avoids sparking, which often occurs when connecting. Furthermore, this device is also controlled by an internal MCU (Micro-Computer-Unit), which makes it faster, more powerful and more reliable.

Reset / deleting settings

After connection to the power supply, the appliance automatically returns to its basic setting and remains in STANDBY mode

Switching over between modes 1, 2 and 3

- Press the selection button MODE 8 repeatedly to display the charging modes in the following order: Ready STANDBY, MODE1, MODE2, MODE3 and start the next cycle.

If you press the selector button 8 ,charging mode automatically switches over to the next mode and begins operation in that mode. However, if a battery is not disconnected from the charging station after a full charge, the appliance remains in trickle-charge mode, even if the user switches over to another mode. This protects the battery from being damaged.

Mode 1 (14.4 V / 0.8 A)

This mode is suitable for charging small batteries with a capacity below 14 Ah.

- Press the selection button MODE 8, to select mode 1. After doing so, the corresponding LED display 2 lights up. If you do not activate an-other process afterwards, the electronic system will automatically start the charging process together with the LED display 7 at (with a current of) 0.8 A ± 10 %.
  If the procedure runs without any problems, the LED display 7 remains on during the entire charging process, until the battery is fully charged at 14.4 V / ± 0.25 V. When the battery is fully charged, LED display 6 lights up and LED display 7 goes out. The floating current is now available for the battery.

Mode 2 (14.4 V / 3.6 A)

This mode is mainly used for charging batteries with a large capacity exceeding 14 Ah under normal conditions.

- Press the selection button MODE 8, to activate mode 2. If you do not activate another process afterwards, the electronic system, together with LED display 3 starts the charging process at (with a current of) 3.6 A ± 10 % (3.6 A).
  If the procedure runs without any problems, the LED display 7 remains on during the entire charging process, until the battery is fully charged at 14.4 V / ± 0.25 V. When the battery is fully charged, LED display 6 lights up and LED display 7 goes out. The floating current is now available for the battery.

Mode 3 (14.7 V / 3.6 A)

This mode is used for charging batteries with a greater capacity than 14 Ah in cold conditions or for several AGM batteries with more than 14 Ah.

- Press the selection button MODE 8, to activate mode 3. As soon as you have selected the suitable charging mode, the corresponding LED display 4 lights up immeditely. If you do not take any further action, the electronic system starts the charging process with a set delay. In this mode the charging current is identical to that of „Mode 2“.
  If the procedure runs without any problems, the LED display 7 lights up, the electronic stystem is active and remains in this condition until the battery is charged to approx. 14.7 V. As soon as this is reached, the charging station switches over to trickle-charging function. Now LED display 7 goes out and LED display 6 lights up to indicate the current status.

Regenerating / charging empty (used, overcharged) batteries

If the charging station is connected to a battery and the charging process starts it automatically recognises the battery voltage. It changes to pulse charging mode if the voltage is in the range of 7.5 V ± 0.5 to 10.5 V ± 0.5 V.
This pulse charging process is continued until the battery voltage has increased to 10.5 V ± 0.5 V. As soon as this condition is reached, the charging station changes over to the previously selected normal charging mode.
Now the battery can be charged quickly and safely. Most empty batteries can be charged and used again using this procedure.

Protective function of the device

If a unexpected situation should occur, such as short circuiting, battery voltage below 7.5 V, open circuit or reversed connection of the output terminals, the charging station deactivates the electronic system and immediately switches back to basic position to avoid damage.
If you do not activate any settings, the system will remain in STANDBY mode. With the inverse connection of the output clamps the LED display „incorrect polarity / fault“ ⚠ 5 lights up additionally.

Overheating protection

If the appliance becomes too hot during charging, the power output is automatically reduced. This protects the appliance from damage.

Maintenance and care

⚠ **Caution! Danger of electric shock!**
Only install, maintain and service the appliance when it is disconnected from the mains!

The appliance is maintenance-free.

- Switch off the appliance.
- Clean the plastic surfaces of the appliance and the remote control with a dry cloth. Do not under any circum-stances use solvents or other aggressive cleaning agents.

Disposal

The packaging is wholly composed of environmentally-friendly materials that can be disposed of at a local recycling centre.

Do not dispose of electrical appliances in household waste.

In accordance with European Directive 2002 / 96 / EC on used electrical and electronic appliances and its implementation in national law, used power tools must be collected separately and recycled in an ecologically compatible manner. Please return the tool via the available collection facilities.

Information on options for disposing of electrical appliances after their useful life can be obtained from your local or city council.

Information

Servicing

The service centre for your country is shown in the guarantee documentation.

- Have your device repaired only by qualified specialist personnel using original manufacturer parts only. This will ensure that your device remains safe to use.
- If the plug or mains lead needs to be replaced, always have the replacement carried out by the manufacturer or its service centre. This will ensure that your device remains safe to use.

Declaration of conformity / Manufacturer CE

We, Kompernaß GmbH, Burgstr. 21,
D-44867 Bochum, Germany, hereby declare
that this product conforms to the following
EU Directives:

EC Low-Voltage Directive (2006 / 95 / EG)

Electromagnetic Compatibility
(89 / 336 / EEC)

Product designation:
Tronic TX4 Battery charger

Bochum, 30.09.2007

Hans Kompernaß
- Managing Director -

We reserve the right to make technical modifications in the course of product development.

TRONIC®